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From Knowledge Coordination to Knowledge Usage: Transcending the Gap with Absorptive Capacity

Hueseyin Tanriverdi
Boston University

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Hüseyin Tanriverdi, Boston University, htverdi@bu.edu

Abstract

When knowledge management systems (KMS) are built potential users do not necessarily make use of each other's knowledge resources. KMS may enhance coordination, but they cannot guarantee usage of knowledge. With low knowledge utilization, KMS are unlikely to provide performance gains. Therefore, I develop a research model for studying the interplay among knowledge coordination, knowledge usage, and performance.

Introduction

Proponents of knowledge-based theory of the firm conceptualize knowledge as the most strategic resource of the firm and hypothesize that superior management of knowledge resources leads to competitive advantage (Grant, 1996). Although this hypothesis remains to be tested empirically, it has already had a major impact in practice. Many firms have built knowledge management systems (KMS) to coordinate and leverage their knowledge resources (Davenport and Prusak, 1998). The underlying assumption is that coordination will facilitate wider usage of knowledge resources, and hence, result in improved performance. However, experience to date does not support this assumption. KMS may successfully identify location of knowledge resources and make them available, but they cannot engender users to actually adopt and utilize the knowledge. Unless knowledge resources are utilized consistently and assiduously, superior performance cannot be achieved. Thus, a major challenge in knowledge management is going beyond knowledge coordination and facilitating knowledge usage.

Knowledge Coordination

Coordination is conceptualized as "management of interdependencies among activities" (Malone and Crowston, 1994). Hence, knowledge coordination can be conceptualized as management of interdependencies among knowledge work activities. Knowledge work consists of unstructured, non-repetitive, complex problem identification and solution activities that usually exceed capabilities of any solo practitioner. It may involve: 1) pooled interdependencies, where each worker works independently and makes a discrete contribution to the whole; 2) sequential interdependencies, where input of one worker is dependent on output of others; and 3) reciprocal interdependencies, where outputs of each worker become inputs for others (Thompson, 1967). Pooled, sequential and reciprocal interdependencies are, in the given order, increasingly more difficult to coordinate. Pooled interdependence requires consistency across workers. It can be coordinated through standard routines and rules. In sequential interdependence, failure of one worker requires readjustment of others' work. It can be coordinated by schedules that govern actions of interdependent workers. In reciprocal interdependence, actions of each worker need to be adjusted to actions of many interacting workers. It can be coordinated by mutual adjustment, i.e., by interactions and rapid feedback among workers (Thompson, 1967). Knowledge involved in coordination of pooled and sequential interdependencies is mainly explicit (e.g., standard routines, rules, and schedules) whereas knowledge involved in coordination of reciprocal interdependence is mainly tacit (e.g., interactions among workers).

Role of IT in Knowledge Coordination

Extant studies on knowledge coordination do not distinguish between coordination of explicit and tacit knowledge. However, contrasts between American and Japanese knowledge management theory and practice suggest that explicit and tacit knowledge may require different coordination mechanisms. While the American approach focuses mainly on development of IT systems for collection, storage, distribution, and reuse of explicit knowledge, the Japanese approach emphasizes social processes whereby individuals can share tacit knowledge and create new knowledge (Cohen, 1998). By enhancing accessibility and distribution of explicit knowledge (e.g., best practices, lessons learned, standards, routines, schedules, etc.) IT systems (e.g., Intranets, document management systems, databases, etc.) can enhance coordination of pooled and sequential interdependencies among individuals, teams, business units, and firms. IT systems can also enhance coordination of tacit knowledge by serving as a transactive memory: i.e., by allowing workers to search who is who, who knows what and who is located where in the organization. By knowing the location rather than the content of tacit knowledge and by relying on each other to accomplish tasks, knowledge workers can coordinate their pooled and sequential interdependencies. However, according to Wenger (1998) IT systems are inadequate in coordinating activities that involve reciprocal tacit knowledge interdependencies (e.g., knowledge exchange, refinement, communication, usage, and creation activities) because tacit knowledge is deeply rooted in individual's actions, experiences, ideals, values, or emotions (Nonaka and Konno, 1998). Brown

and Duguid (1991) propose communities of practice as an effective mechanism for coordinating tacit knowledge. In a community of practice, members have access not only to explicit knowledge and abstractions of individual practice, but also to legitimate peripheral learning, i.e., access to practitioners at work. They pick up invaluable tacit knowledge by being on the periphery of competent practitioners going about their business (Brown and Duguid, 1991). Therefore, IT-based knowledge coordination mechanisms need to be complemented by social coordination mechanisms such as communities of practice.

Knowledge Usage

Once knowledge is coordinated, participants must actually process and use it to be able to realize potential performance gains. However, prior studies show that knowledge coordination does not automatically engender knowledge adoption and usage. For example, experimental studies using "hidden profile" tasks show that groups do not make effective use of unique information of its members in decision making. Although individual members share their unique information, and group support systems enhance coordination of the information, groups tend to ignore it. Instead, they use information that is common to all members even when they are informed that optimal decisions cannot be reached unless unique information of members is also considered (Dennis, 1996). This finding indicates that exploitation of information and knowledge for performance is not simply a problem of coordination. It also requires perspective taking processes in which sharers are able to appreciate and synergistically utilize each other's distinctive information and knowledge (Boland and Tenkasi, 1995). Consequently, I posit that the association between knowledge coordination and performance is mediated by knowledge usage:

> Proposition-1: Knowledge usage mediates the relationship between knowledge coordination and performance.

Absorptive Capacity

Conventional wisdom explains low levels of knowledge usage by motivational factors such as lack of incentives, lack of a sharing culture, users' failure to seek out knowledge from others, users' protection of their own knowledge, etc. Many argue that compensation systems are the key to knowledge sharing and usage (Hayduk, 1998). However, systematic empirical investigations point to different explanations. For example, Constant, Kiesler, and Sproull (1994) found that people share information products (explicit knowledge) because they consider them as organizational property that should be shared whereas they share expertise (tacit knowledge) because they think of expertise as individual property and sharing expertise fulfills their self-expression and self-consistency needs. This finding indicates that people are not necessarily after financial incentives in sharing their knowledge. Another systematic empirical investigation of knowledge exchange between business units shows that recipient's lack of absorptive capacity is a greater barrier to adoption and utilization of knowledge than motivational factors (Szulanski, 1996). Cohen and Levinthal (1990) define absorptive capacity as the ability to recognize, assimilate and utilize new knowledge. It is a function of prior related knowledge of recipient, commonality of language, knowledge and skills of recipient and sender, and familiarity of recipient with recent scientific and technical developments in the particular knowledge domain. A recipient that lacks absorptive capacity is less likely to recognize the value of new knowledge, less likely to assimilate that knowledge, and less likely to utilize it successfully. For example, groups composed of members who are familiar with each other (an indicator of absorptive capacity) are more effective in utilizing unique information of its members (Gruenfeld, Mannix, Williams, and Neale, 1996). However, in the absence of appropriate contextual knowledge (an indicator of absorptive capacity), individuals cannot make new knowledge fully intelligible even if they may nominally acquire it (Lindsay and Norman, 1977). Thus:

> Proposition-2: Association between knowledge coordination and knowledge usage is moderated by absorptive capacity of knowledge sharers.

Figure 1 depicts the research model emerging from the discussion above.

Operationalization

Although the proposed model can be operationalized at different levels of analysis, I will focus on the team level. Knowledge coordination and performance constructs have already been operationalized at the team level. Validated measures are readily available (Faraj and Sproull, 1998). However, Faraj and Sproull (1998) have not distinguished between coordination of explicit and tacit knowledge. Therefore, their knowledge coordination construct needs to be developed further. Absorptive capacity has been operationalized at business unit, firm, and inter-firm levels of analysis (Szulanski, 1996; Cohen and Levinthal, 1990, Lane and Lubatkin, 1998). It needs to be adapted to and validated at the team level of analysis. To the best of my knowledge, knowledge usage is an entirely new construct. I suggest examination and adaptation of the previously validated "information use" construct (e.g., Dennis, 1996) as a starting point for development of the knowledge usage construct.

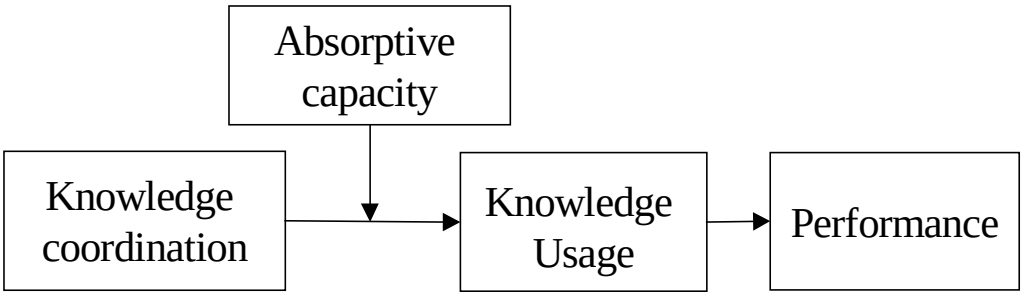

Figure 1. Proposed research model

Conclusion

Knowledge coordination may enhance collective knowledge of teams, business units, and firms. However, it needs to be accompanied by knowledge usage if superior performance is to be achieved. Whether knowledge coordination can lead to knowledge usage depends on absorptive capacities of individuals, teams, business units, and the firm. The model developed in this study holds the potential to explain why organizational units and members fail to effectively transfer and utilize their knowledge resources. Further work is required in construct development, validation, and model testing at team or higher levels of analysis.

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